THE UNITED STATES DISTRICT COURT FOR
SOUTHERN DISTRICT OF NEW YORK

GENOA COLOR TECHNOLOGIES, LTD., Plaintiff,	)	
v.	)	No. 07-CV-6233 (PKC)
MITSUBISHI ELECTRIC CORP.; MITSUBISHI ELECTRIC US HOLDINGS, INC.; MITSUBISHI ELECTRIC AND ELECTRONICS USA, INC.; MITSUBISHI DIGITAL ELECTRONICS AMERICA, INC.; SAMSUNG ELECTRONICS CO., LTD.; SAMSUNG ELECTRONICS AMERICA, INC. Defendants.	)	(JURY TRIAL DEMANDED)

Supplemental Declaration of Louis D. Silverstein, Ph.D. in Support of the Plaintiff's Proposed Claim Construction for U.S. Patent No. 7,113,152

I, Louis D. Silverstein, hereby declare as follows:

I. INTRODUCTION

In the case of Genoa Color Technologies, Ltd. (Plaintiff) versus Mitsubishi Companies and Samsung Companies (Defendants), I have been retained as an expert witness by the Plaintiff, as represented by the firm of Lahive & Cockfield LLP. I have been selected as an expert witness for this case because my education and experience well qualifies me as one of ordinary skill in the arts of display technology and color science. In my role as an expert witness for the Plaintiff, I have been requested perform the following activities: 1) to investigate and render expert

opinions on the scope and validity of the intellectual property of the Plaintiff as described in issued U.S. Patent No. 7,113,152 (the "'152 patent") entitled "Device, System and Method for Electronic True Color Display;" 2) to offer interpretation and support meaningful and correct claim construction for the '152 patent; 3) to evaluate the veracity of invalidity assertions of the defendants against the claims of the '152 patent; and 4) to assist in the determination of whether the activities and products of the defendants infringe on the intellectual property of the Plaintiff as manifested in the claims of the '152 patent.

Pursuant to the activity of supporting the Plaintiff in the matter of technical interpretation and development of meaningful and correct claim construction for the '152 patent, on April 24, 2008 I submitted a declaration entitled "Declaration of Louis D. Silverstein, Ph.D. in Support of the Plaintiff's Proposed Claim Construction for U.S. Patent No. 7,113,152." Subsequent to the submission of the above declaration, Defendants have filed the following two documents and a video addressing the matter of claim construction for the '152 patent:

- Defendants' Joint Claim Construction Brief, dated May 23, 2008.
- Declaration of James F. Shanley, Ph.D., in Support of Defendants' Joint Claim Construction Brief, dated May 23, 2008.
- Video on '152 Patent Technology Tutorial Presented By Dr. Jim Shanley

The purpose of this supplemental declaration is to provide comments on several points of contention between Plaintiff and Defendants as they relate to the definition of terms utilized in the construction of claims and to clarify several errors and misconceptions found in the two documents recently filed by the Defendants. Plaintiff's proposed claim construction and Defendants' joint proposed claims construction may be found in Exhibits A and B, respectively.

II. COMMENTS AND CLARIFICATIONS

A. Definition of a color image.

In their Joint Claim Construction Brief, Defendants assert stridently that the definition of a "color image" in claim 1 of the '152 patent should be interpreted simply as the most common, ordinary use of the term and suggest an interpretation of an "image comprised of at least one color." The expert witness for the Defendants, James F. Shanley, Ph.D., supports this interpretation in his declaration and finds no credible basis to support any other interpretation.

I strongly disagree with this interpretation. All digital color display systems, including the invention described and claimed in the '152 patent, reconstruct a color image from a set of spatial samples (and temporal samples in the case of video) and using a defined set of color primaries to synthesize the colors of the original or intended image. The spatial samples of digital imaging systems are typically referred to as picture elements or the shortened nomenclature "pixels" in common parlance. Each such system is not capable of producing just any color image but can only reconstruct a representation of that image constrained by the spatial, temporal and color synthesis characteristics of the system. Thus, the reconstructed color images produced by a digital color display system are bounded or defined by the imaging characteristics of the system.

Claim 1 of the '152 patent does not claim a color image but rather "A method of producing a color image....." The method described in the patent can only produce a color image as defined by the imaging characteristics of claimed invention. As such, the color images reconstructed by the invention described in the '152 patent and claimed by the method of claim 1 must by definition include a plurality of pixels and must synthesize the colors of the input image by an appropriate combination of primary color components of the system, consisting of at least

four non-white and non-black colors. Regardless of whether the input image consists of an image of a single color or a complex color image with all of the colors of the spectrum, the invention of the '152 patent and claimed by the method of claim 1 must generate an appropriate signal value for each of the at least four non-white and non-black primary color components (some of which can assume the value of zero depending on the image content) and reconstruct the color image in the same manner. It can produce a color image in no other way.

The Defendants and their retained expert, Dr. Shanley, assert that the construction of claim 1 provided by the Plaintiff relies only on the unsupported opinion of an expert (myself). I offer the above rationale in response and maintain that common sense, good technical judgment and a careful reading of the '152 patent are sufficient to delineate the proper construction of claim 1. In my opinion, the construction of claim 1 and the definition of color image contained therein are entirely consistent and supported by both the specification of the '152 patent and directly by claim 1 itself.

B. Use of the term pixel.

Defendants take exception to the use of the term "pixel" and assert that the Plaintiff has added required features in the claim construction which were not described or claimed in the '152 patent (see page 10 of Defendants' Joint Claim Construction Brief). In my opinion, this is a vacuous argument. As described above, all digital color display systems, including the invention described and claimed in the '152 patent, reconstruct a color image from a set of spatial samples, and the spatial samples of digital imaging systems are typically referred to as picture elements or the shortened nomenclature "pixels." The term "pixel" is also commonly used to describe the spatial resolution of digital image capture devices such as digital cameras as well as the spatial structure of digital image files. Moreover, the term "pixel" has become an inexorable part of the

lexicon of those of ordinary skill in the art of digital imaging and has permeated the parlance of consumers of digital imaging products.

Plaintiff's claim construction which indicates that the color images produced by the methods of the '152 patent constitute a plurality of pixels are directly supported by repeated reference to pixel structure and processing of pixels in specification of the patent (e.g. 2:59-63, 7:50, 9:11-13, 10:12, 14, 46, 54, 11:50, 54). Indeed, the invention described and claimed in the '152 patent can reconstruct color images in no other way than via a plurality of pixels.

C. **Definition of a data signal.**

Plaintiff has proposed a claim construction which defines data signal as "a signal representing an image in terms of a plurality of pixels, each having exactly three component values, e.g., RGB, XYZ, YCC, etc." Defendants and their expert reject this construction and propose that data signal be construed to mean "a signal that carries data." In my opinion, this completely ignores the context of both the specification and claims of the '152 patent. The signals at issue in interpretation of the '152 patent are not just generic signals which may be input into some generalized signal or data processing system but rather color data input signals which have a specific structure and format and are generally standardized. As evidenced by the specific citations included in support of Genoa's proposed construction (Genoa's brief at 16 and Exhibit A of this amendment), the '152 patent discloses that the input data is "RGB input data," (Fig 6B). The flow of data is explained at col 10, lines 39-63 with reference to Fig 3B, and starts with "R, G and B values." This is an important part of the invention, because TV and video input signals are in RGB format or some 3-component transformation thereof such as YCC, and the point of the invention is to provide for a multi-primary (more than three primary color)

display based on a standard RGB-based TV or video input signal, as discussed in the Field and Background of the Invention (1:17 – 4:4).

D. Definition and interpretation of converting of color image data

Defendants and their expert, Dr. Shanley, both reproduce and highlight a statement attributed to me as provided in my preliminary evaluation entitled "Preliminary Expert Witness Evaluation of Patent Validity Issues By Louis D. Silverstein, Ph.D. in Support of the Opposition of Genoa Color Technologies, Ltd. to Defendants' Request for Stay Pending Reexamination." The statement reproduced by Defendants and their expert from page 14 of that document is as follows: "....the necessity of color mapping from "standard" inputs consisting of color image data for three primary colors (e.g., RGB) or triplets of processed color signals (e.g., YCC, YUV, YCbCr, or XYZ) to a system of more than three primaries is obvious for a multi-primary color display system,..." However, Defendants and their expert conveniently took this quote out of context and neglected to include the complete statement which accurately describes my opinion: "Although the necessity of color mapping from "standard" inputs consisting of color image data for three primary colors (e.g., RGB) or triplets of processed color signals (e.g., YCC, YUV, YCbCr, or XYZ) to a system of more than three primaries is obvious for a multi-primary color display system, the derivation of an optimal and efficient methodology for performing the mapping or transformation is non-trivial and not obvious (underline emphasis present in original document). Thus, my statement indicated that the necessity and problem of transforming colors from "standard" inputs consisting of color image data for three primary colors (e.g., RGB) or triplets of processed color signals (e.g., YCC, YUV, YC_bC_r, or XYZ) to a system of more than three primaries is obvious for a multi-primary color display system, but that a proper and

effective solution to the problem was neither obvious nor trivial. This appears to be a deliberate misrepresentation of my thinking on this matter.

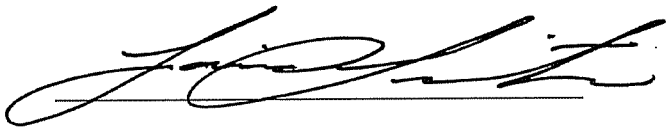
Defendants and their expert further misrepresent my statements and opinions by suggesting that my description of one method of color data transformation as presented in my declaration is the only method I attributed to the '152 patent (see Declaration of James F. Shanley, Ph.D., item 21 and Defendants' Joint Claim Construction Brief, page 21) and the only method of transforming colors from "standard" inputs consisting of color image data for three primary colors (e.g., RGB) or triplets of processed color signals (e.g., YCC, YUV, YC_bC_r, or XYZ) to a system of more than three primaries disclosed in the '152 patent. Both of these assertions are incorrect. On page 36 of my declaration of April 24, 2008 in describing the methods of color data transformation described and claimed in the '152 patent, I clearly state that "Figure 15 illustrates one of the preferred embodiments for RGB to multi-primary color mapping described in Genoa's '152 patent." I go on to describe this embodiment and draw attention to how it differs from previous approaches based on partitioning a color space into non-overlapping triangles. Further, the '152 patent describes at least four methods and preferred embodiments for RGB to multi-primary color transformation. In addition to the preferred embodiment described in my declaration, there are two additional embodiments based on different methods of partitioning the color space without the definition of a calibrated or composite white reference point as well as embodiments which do not rely on the geometric partitioning of a color space, but rather determine the appropriate multi-primary color signals via the use of look-up tables and interpolation or spectral analysis (see 22:35-23:65 and especially 23:50-65 of the '152 patent). One wonders whether the Defendants and their expert, Dr. Shanley, carefully read my declaration of April 24, 2008 or actually read and understood the '152 patent.

Clearly, the method of partitioning a color space or gamut into non-overlapping triangles is one method to accomplish three-color to multi-primary color transformations. Within this method there are variations which yield very different results and very different efficacies for a multi-primary display system. In my opinion, the methods of geometric partitioning of the display color gamut into non-overlapping triangles along with the definition of additional "composite primaries" to enable accurate color reproduction while maximizing utilization of all of the display system primaries was novel at the time of invention for the '152 patent. The inventors clearly understood the problem of three-color to multi-primary color transformation and provided at least four alternative embodiments in the '152 patent including approaches based on color space partitioning, the use of look-up tables with interpolation and spectral analysis. Moreover, the inventors were the first to fully integrate a high-performance, multi-primary color display system with efficient and accurate color transformation and demonstrate its potential to the technical community involved in digital color imaging.

III. CERTIFICATION

The opinions contained in this declaration are my own and are independent of both my compensation as an expert witness for the Plaintiff and the outcome of the case.

Signed under the pains and penalties of perjury this 29th day of May, 2008.



Louis D. Silverstein, Ph.D.
VCD Sciences, Inc.
May 29, 2008.

Exhibit A

Plaintiff's Proposed Claim Construction

U.S. Patent No. 7,113,152

Claim and Claim Element	Genoa's Proposed Construction	Support for Genoa's Proposed Construction
1. A method of producing a **color image** comprising:	an image including a plurality of pixels, at least some of which are made up of at least four non-white and non-black colors.	The preamble constitutes a limitation of claim 1, because its reference to "color image" provides an antecedent basis for the term, "said color image" that occurs in the body of the claim as discussed below. Claim 1 on its face states that "said color image" is produced by spatially modulating light of at least four colors (see below). One of ordinary skill would understand the term, "color image" as shown on an "electronic true color display" (1:2) to require and consist of a plurality of pixels, each of which corresponds to a portion of the image. (9:11) As stated in the Abstract, the invention is for "a device, system and a method for displaying image data of a plurality of colors, the device comprising a light source for producing light of having at least four primary colors," and "is not limited to combinations of colors which are produced from only three primary colors, such as red, green and blue." The "Summary of the Invention" discloses "a device for displaying image data of a plurality of colors, the device comprising a light source for producing light having at least four primary colors and a viewing screen for displaying the image," including "projecting the light of each primary color according to the path onto the viewing screen to form the image." (4:44-55) The invention is for "displaying an expanded gamut of colors, namely four or more primary colors." In this context, one of ordinary skill would understand that black does not constitute a primary color. The "color image" is an image projected onto a viewing screen (9:13-15) that consists of a "full color image" with "a wide gamut of colors." (10:2,

		19-20) At the time of the invention, one of ordinary skill would have understood that the term "color image" means an image including a plurality of pixels, made up of at least four non-white and non-black colors.
projecting **polychromatic light** from a light source onto a first side of a color wheel having at least four non-white and non-black color filters;	light including a plurality of wavelengths	One of ordinary skill would understand that the term "polychromatic light" refers to light including a plurality of wavelengths. The specification refers to "white or polychromatic" light. (4:16) It discloses further that when white light is passed through a filter, it forms colored light of a defined spectral range. (8:65-67)
rotating said color wheel such that the polychromatic light from said light source is sequentially filtered by transmission through said at least four color filters to sequentially produce at a second side of said color wheel, opposite said first side, light of at least four colors, each of said at least four colors having a different chromaticity from the others of the at least four colors; and	no construction needed	The terms included in this element all possess their ordinary meanings.

spatially modulating	varying the intensity and/or color and/or angular distribution and/or polarization of light as a function of spatial position	"The light beam is spatially modulated by spatially modulated mask 56, so that the apparent brightness of each primary color varies a different portion of the viewing screen 60…" (10:7-10) As shown on Figures 3A and 3B, light of at least four colors shines sequentially on spatial modulator 56 that possesses individual pixels 70. In the case of a DMD or digital micro-mirror device, each pixel of the DMD represents a mirror that is controlled to direct light toward viewing screen 60 or away from viewing screen 60 in accordance with a data signal providing data input 44 as shown in Figure 3A and image data 72 as shown in Figure 3B. (9:43-45; 9:56-10:20; 8:19-53) The specification discloses a variety of ways in which "spatial modulation" can occur. "The spatial modulation can optionally be performed with analog or binary levels or gradations, according to the type of modulator device which is used. Nematic liquid crystal modulators, for example…allow for analog "grey levels",....If a binary modulator device is used for spatial modulation "grey levels" are achieved by controlling the duration of the illumination, and/or the intensity of the light incident on the spatial modulator." (7:38-41) "In this context, LCD features an organized structure of anisotropic molecules, for which the axis of anisotropy is rotated by the application of voltage, thereby rotating polarization." (9:27-30) The specification further discloses varying intensity by varying polarization in LCD spatial modulators. (9:22-25) "Examples of the binary modulation type include, but are not limited to, DMD, FLC, quantum well modulator and electro-optical modulator. DMD (digital micro-mirror device) is an array of mirrors, each of which has two positions, either reflecting light toward a viewing screen 60, or reflecting light away from viewing screen 60." (9:41-46)

		At the time of the invention, one of ordinary skill would have understood that the term "spatially modulating" encompasses each of the means of varying light as a function of position as set forth in Genoa's proposed construction.
said light of at least four colors in accordance with a **data signal**	a signal representing an image in terms of a plurality of pixels, each having exactly three component values, e.g., RGB, XYZ, YCC, etc.	The data signal providing digital image data 72 as shown in Figure 3B is a signal that presents three component values for each pixel (*e.g.*, Red, Green, Blue or "RGB"). (10:39-63) The input data is shown in Figure 6B as "RGB input data." (14:34-38). The RGB signals may be transformed into other combinations having three component values using "YCC-type data formats." (10:60-63) In either case, the input "data signal" is a signal representing pixels, each of which has exactly three component values, *e.g.*, RGB or YCC-type data. (11:16-18) At the time of the invention, one of ordinary skill would have understood that the term "data signal" to have the meaning as set forth in Genoa's proposed construction.
to **produce said color image**.	construct an image from a plurality of pixels, at least some of which are made up of at least four non-white and non-black colors	By means of the steps of color transformation 74, gamma correction 76, frame buffer 78, and timing and control 66, all as shown in Figure 3B, the three component (*e.g.*, RGB) data signal providing image data 72 is converted so that, by means of spatial modulator 56, it provides a color image made up of individual positions 68 on the viewing screen 60. Color image is a full color image made up of more than three primary colors. "The human viewer integrates the sequential stream of the primary images to obtain a full-color image with a wide gamut of colors when viewing the image as projected onto viewing screen 60." (10:16-21) Under Figure 6B, this transformation commences with a three color RGB input and ends with a seven color data output. In any event, the result is the construction of an image from a plurality of pixels, at least some of which are made up of at least four non-white and non-black colors. (10:18-20) Thus,

		"the use of such [RGB or YCC-type] requires the data to be transformed into a format which is suitable for a display including at least four primaries." (14:16-18) At the time of the invention, one of ordinary skill would have understood that the term "produce said color image" to have the meaning as set forth in Genoa's proposed construction.
2. The method of claim 1, wherein each of said at least four light colors is produced at least once during one rotation of said color wheel.	*See* Claim 1. Otherwise no construction needed	One of ordinary skill would understand that the terms in this claim element have their ordinary meaning.
3. The method of claim 1, further comprising operating a motor attached to said color wheel for rotating said color wheel.	*See* Claim 1. Otherwise no construction needed	One of ordinary skill would understand that the terms in this claim element have their ordinary meanings.
4. The method of claim 1, further comprising projecting said filtered light onto a viewing screen.	*See* Claim 1. Otherwise no construction needed	One of ordinary skill would understand that the terms in this claim element have their ordinary meanings.
5. The method of claim 1, wherein said **spatially modulating** said light comprises	*See* Claim 1.	*See* Claim 1 for the construction of "spatially modulating."
selectively activating a spatial light modulator	controlling the individual pixels of	The individual pixels of the spatial light modulator are controlled. "The light beam is spatially modulated by spatially modulated mask 56 so that the apparent brightness of each primary color varies at different portions of viewing screen 60, typically

		according to each pixel of the image. Each position 68 on viewing screen 60 is preferably associated with a certain pixel 70 and spatially modulated mask 56. The brightness of that position is determined by the relevant data pixel in the image." (10:7-14)
6. The method of claim 5, wherein said spatial light modulator is **a digital micro-mirror device** (DMD).	*See* Claims 1 and 5. a two-dimensional arrangement of mirrors, each of which has at least two orientations, each of which orientations reflects light in a different direction	(*See* 9:43-45)
7. The method of claim 5, wherein said **selectively activating** said spatial light modulator comprises activating said spatial light modulator to sequentially modulate the light of said at least four different colors	*See* Claims 1 and 5. controlling the individual pixels of	*See* Claims 1 and 5.

8. The method of claim 1, further comprising **converting**	*See* Claim 1. transforming	The "color transform" module 74 as shown in Figure 3B converts the three-color input to an output of more than four primary colors by transforming the data. (11:16-21; 14:16-18; 16:62-63 (transformation of RGB data to a format suitable for displaying with at least four colors).
three-color data representing said color image in terms of three colors	an image represented by a plurality of pixels, each having exactly three component values	*See* Figure 3B image data 72 and Figure 6B; description of data flow in which data representing color image in terms of three colors is transformed. (10:39-11:21)
into **converted image data representing said color image in terms of said at least four different colors**.	**"converting three color data…into converted image data"** means, for every pixel in the input data, transforming each three-component pixel into a pixel having at least four (potentially non-zero) colors, each of the at least four colors corresponding to a non-white and non-black filter	The input data is "a signal representing the R, G and B values of pixel-after-pixel, line after line for a film frame." (10:45-46; 54-55) Data arriving in analog video signal form is transformed into digital data. (10:42, 65) The "digital RGB image data or YCC-type data is then manipulated in a multi-color transformation module 74 . . . into a color format which includes data for each color of color filters 52, with N-bits of data per color (for example, seven colors, of which one is white, and 8 bits per color)." (11:16-21) Thus, each pixel of the converted image data has at least four color components. The values of some of those component colors may have a zero value, but all of the component colors have potentially non-zero values, each of which corresponds to the at least four colors represented by the filters in the color wheel depicted in Figure 4A. (12:42-46;15:24-41)
9. The method of claim 8, further comprising: receiving image data representing said color image in terms of said at least four colors; and generating a **formatted data signal** including a sequence of	*See* Claims 1 and 8. an arrangement of the converted data signal	The converted data is loaded into a frame buffer and format module 78 which arranges the stream of data in a format consistent with the electronic requirements of spatially modulated mask 56. (11:39-42) The frame buffer is divided into bit planes, each bit of which corresponds to one pixel on the spatially modulated mask. (11:47-51) Each bit plane corresponds to a color such that, "if a pixel is to have a component which includes a particular primary color, that pixel is represented by a particular bit on the appropriate bit plane that features that primary color." (11:52-55)

		See 11:39-46: "The corrected data is then loaded into a frame buffer and format module 78 which arranges the stream of data in a format consistent with the electronic requirements of spatially modulated mask 56. Frame buffer and format module 78 is a memory device for holding the data of the image. Typically, the data is held in the same geometrical arrangement as the pixels of the image, and of spatially modulated mask 56."
color data **arrays**, each array including data representing at least part of said image data corresponding to one of said at least four colors.	multi-dimensional data structures or arrangements of data	*See* 11:47-60: [T]he frame buffer itself, of frame buffer and format module 78, is preferably divided into bit planes. Each bit plane is a planar array of bits, in with each bit corresponds to one pixel on spatially modulated mask 56."
10. The method of claim 9, wherein said **spatially modulating** said light comprises	*See* Claims 1, 5 and 9.	*See* support stated as to Claim 1.
selectively activating a spatial light modulator based on said formatted data signal to produce a light pattern corresponding to said color image.	controlling the individual pixels of	*See* support stated as to Claim 5.

Exhibit B

Defendants' Joint Proposed Claim Construction

U.S. Patent No. 7,113,152

Proposed Claim Constructions

Patent Claims	Terms for Construction	Defendants' Proposed Construction	Plaintiff's Proposed Construction
1. A method of producing a **color image** comprising: projecting **polychromatic light** from a light source onto a first side of a color wheel having at least four non-white and non-black color filters; rotating said color wheel such that the **polychromatic light** from said light source is sequentially filtered by transmission through said at least four color filters to sequentially produce at a second side of said color wheel, opposite said first side, light of at least four colors, each of said at least four colors having a different chromaticity from the others of the at least four colors; and **spatially modulating** said light of at least four colors in accordance with a **data signal** to **produce said color image.** 2. The method of claim 1, wherein each of said at least four light colors is produced at least once during one rotation of said color wheel. 3. The method of claim 1, further comprising operating a motor attached to said color wheel for rotating said color wheel. 4. The method of claim 1, further comprising projecting said filtered light onto a viewing screen. 5. The method of claim 1, wherein said **spatially modulating** said light comprises **selectively activating** a spatial light modulator in accordance with said **data signal.** 6. The method of claim 5, wherein said spatial light modulator is **a digital micro-mirror device** (DMD). 7. The method of claim 5, wherein said **selectively activating** said spatial light modulator comprises activating said spatial light modulator to sequentially modulate the light of said at least four different colors in accordance with said **data signal.** 8. The method of claim 1, further comprising **converting three-color data representing said color image in terms of three colors into converted image data representing said color image in terms of said at least four different colors.** 9. The method of claim 8, further comprising: receiving image data representing said **color image** in terms of said at least four colors; and generating a **formatted data signal** including a sequence of color data **arrays**, each **array** including data representing at least part of said image data corresponding to one of said at least four colors. 10. The method of claim 9, wherein said **spatially modulating** said light comprises **selectively activating** a spatial light modulator based on said **formatted data signal** to produce a light pattern corresponding to said **color image.**	**"color image" [claims 1, 8, 9, 10]**	"image comprised of at least one color"	"an image including a plurality of pixels, at least some of which are made up of at least four non-white and non-black colors"
	"data signal" [claims 1, 5, 7, 9]	"a signal that carries data"	"a signal representing an image in terms of a plurality of pixels, each having exactly three component values, e.g., RGB, XYZ, YCC, etc."
	"converting" [claim 8]	**Samsung Defendants:** "partitioning the color gamut to transform" **Mitsubishi Defendants:** "transforming"	"transforming"
	"three-color data representing said color image in terms of three colors" [claim 8]	Relevant terms have either (1) already been construed (*e.g.*, "color image") or (2) consist of words needing no construction or a plain meaning construction (*e.g.*, "three" means "three").	"an image represented by a plurality of pixels, each having exactly three component values"

Patent Claims	Terms for Construction	Defendants' Proposed Construction	Plaintiff's Proposed Construction
1. A method of producing a **color image** comprising: projecting **polychromatic light** from a light source onto a first side of a color wheel having at least four non-white and non-black color filters; rotating said color wheel such that the **polychromatic light** from said light source is sequentially filtered by transmission through said at least four color filters to sequentially produce at a second side of said color wheel, opposite said first side, light of at least four colors, each of said at least four colors having a different chromaticity from the others of the at least four colors; and **spatially modulating** said light of at least four colors in accordance with a **data signal** to **produce said color image**. 2. The method of claim 1, wherein each of said at least four light colors is produced at least once during one rotation of said color wheel. 3. The method of claim 1, further comprising operating a motor attached to said color wheel for rotating said color wheel. 4. The method of claim 1, further comprising projecting said filtered light onto a viewing screen. 5. The method of claim 1, wherein said **spatially modulating** said light comprises **selectively activating** a spatial light modulator in accordance with said **data signal**. 6. The method of claim 5, wherein said spatial light modulator is **a digital micro-mirror device** (DMD). 7. The method of claim 5, wherein said **selectively activating** said spatial light modulator comprises activating said spatial light modulator to sequentially modulate the light of said at least four different colors in accordance with said **data signal**. 8. The method of claim 1, further comprising **converting three-color data representing said color image in terms of three colors into converted image data representing said color image in terms of said at least four different colors**. 9. The method of claim 8, further comprising: receiving image data representing said **color image** in terms of said at least four colors; and generating a **formatted data signal** including a sequence of color data **arrays**, each **array** including data representing at least part of said image data corresponding to one of said at least four colors. 10. The method of claim 9, wherein said **spatially modulating** said light comprises **selectively activating** a spatial light modulator based on said **formatted data signal** to produce a light pattern corresponding to said **color image**.	**"[converting three-color data representing said color image in terms of three colors into] converted image data representing said color image in terms of said at least four different colors" [claim 8]**	Relevant terms have either (1) already been construed (*e.g.*, "color image") or (2) consist of words needing no construction or a plain meaning construction (*e.g.*, "three" means "three").	"'converting three color data … into converted image data' means, for every pixel in the input data, transforming each three-component pixel into a pixel having at least four (potentially non-zero) colors, each of the at least four colors corresponding to a non-white and non-black filter."
	"polychromatic light" [claim 1]	"light consisting of a plurality of colors or spectral wavelengths"	"light including a plurality of wavelengths"
	"spatially modulating" [claims 1, 5, 10]	"varying in space"	"varying the intensity and/or color and/or angular distribution and/or polarization of light as a function of spatial position"
	"produce said color image" [claim 1]	"Color image" has already been construed. The term "produce" needs no construction. If construed, though, the phrase should mean "create a color image."	"construct an image from a plurality of pixels, at least some of which are made up of at least four non-white and non-black colors"
	"selectively activating" [claims 5, 7, 10]	The term should not be construed. If construed, should mean "varying the operation of."	"controlling the individual pixels of"
	"digital micro-mirror device (DMD)" [claim 6]	"arrangement of mirrors each of which can reflect light either toward or away from the display screen"	"a two-dimensional arrangement of mirrors, each of which has at least two orientations, each of which orientations reflects light in a different direction"

Patent Claims	Terms for Construction	Defendants' Proposed Construction	Plaintiff's Proposed Construction
1. A method of producing a **color image** comprising: projecting **polychromatic light** from a light source onto a first side of a color wheel having at least four non-white and non-black color filters; rotating said color wheel such that the **polychromatic light** from said light source is sequentially filtered by transmission through said at least four color filters to sequentially produce at a second side of said color wheel, opposite said first side, light of at least four colors, each of said at least four colors having a different chromaticity from the others of the at least four colors; and **spatially modulating** said light of at least four colors in accordance with a **data signal** to **produce said color image**. 2. The method of claim 1, wherein each of said at least four light colors is produced at least once during one rotation of said color wheel. 3. The method of claim 1, further comprising operating a motor attached to said color wheel for rotating said color wheel. 4. The method of claim 1, further comprising projecting said filtered light onto a viewing screen. 5. The method of claim 1, wherein said **spatially modulating** said light comprises **selectively activating** a spatial light modulator in accordance with said **data signal**. 6. The method of claim 5, wherein said spatial light modulator is **a digital micro-mirror device** (DMD). 7. The method of claim 5, wherein said **selectively activating** said spatial light modulator comprises activating said spatial light modulator to sequentially modulate the light of said at least four different colors in accordance with said **data signal**. 8. The method of claim 1, further comprising **converting three-color data representing said color image in terms of three colors into converted image data representing said color image in terms of said at least four different colors**. 9. The method of claim 8, further comprising: receiving image data representing said **color image** in terms of said at least four colors; and generating a **formatted data signal** including a sequence of color data **arrays**, each **array** including data representing at least part of said image data corresponding to one of said at least four colors. 10. The method of claim 9, wherein said **spatially modulating** said light comprises **selectively activating** a spatial light modulator based on said **formatted data signal** to produce a light pattern corresponding to said **color image**.	**"formatted data signal" [claims 9, 10]**	"a predetermined arrangement of a data signal" --or-- "a predetermined arrangement of a signal that carries data"	"an arrangement of the converted data signal"
	"array(s)" [claim 9]	"arrangement(s) of rows and columns"	"multi-dimensional data structures or arrangements of data"

[1] Genoa's brief proposes construing the claim language after this footnote. Genoa's proposed definition, however, additionally suggests construing the bracketed text.